THE

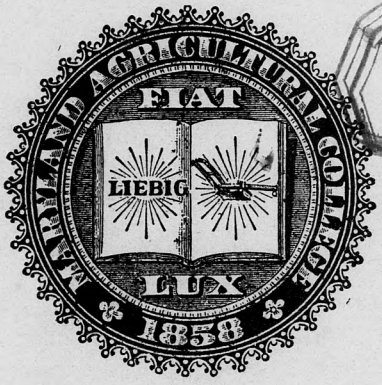
# Maryland Agricultural College QUARTERLY

ENTERED AT COLLEGE PARK (MD.) POST OFFICE AS SECOND-CLASS MATTER

NO. 48 MAY. 1910.

# FEED STUFF ANALYSES.

R. W. SILVESTER, President
Edited by H. B. McDONNELL, - - Professor of Chemistry.

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Issued in the Months of February, May, August and November

ADDRESS

Chemical Department, Maryland Agricultural College

COLLEGE PARK, MD.

# ANALYSES OF

# COMMERCIAL FEEDING STUFFS SOLD IN MARYLAND

BY THE CHEMICAL DEPARTMENT OF

## THE MARYLAND AGRICULTURAL COLLEGE

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This bulletin contains the results of analysis of feeding stuffs made in this laboratory from January to May, 1910, inclusive. The arrangement is in alphabetical order of manufacturers.

To the usual analysis for Protein and Fat we have added that of Fiber, as the latter is of value in judging the purity of the feed.

**Protein** is the most important constituent of the feed, and the most expensive. It is absolutely necessary to the animal to build and repair muscle, nerve, sinew, hair, feathers, etc.; in fact, enters into the composition of all parts of the body. The amount of protein is obtained by finding the amount of nitrogen and multiplying this by 6¼.

**Fat,** or ether extract, is obtained by extracting a small part of the sample with ether for sixteen hours. Fat serves as a fuel or energy producer, or to build fatty tissue which is a reserve supply for the animal. Starch and sugar serve the same purpose, but are less than half as efficient. Protein can also serve as an energy and fat-producer, but its main function should be as a tissue builder.

**Fiber** is the indigestible part of the feed and, from the commercial standpoint, has little value as feed. Hulls, straw, etc., are high in fiber so that the amount of fiber serves as an index of the amount of contamination with such materials. In the case of any given feed, as cotton-seed meal, a low protein content will be accompanied with a corresponding high fiber content, caused by the added hulls.

It should be remembered that in coarse materials which are necessarily low in protein—as straw, oat hulls, peanut hulls, etc.—a smaller

percentage of the protein present is digestible than in the case of high-grade feeds.

This department wishes to have the cooperation of feeders and dealers in the inspection of concentrated feeds and will be glad to analyze samples, provided samples of the same feeds have not been recently analyzed in the department. Before sending samples write for blanks and instructions. We will not analyze samples of medicines, "condition powders," condimental feeds, or the so-called "feeds" that are "five feeds for a cent" to be mixed with the regular feeds. Careful experiments at a number of the experiment stations have proved that these medicinal "feeds" are of no practical value.

The examination of the common feeds, as bran, middlings, corn meal, etc., will generally be limited to a microscopical examination for adulteration, as the slight variation in the chemical composition of the pure articles will not justify the expense of making a regular chemical analysis.

Concentrated feeding stuffs are generally by-products and the analysis of any one of them will vary some, depending on the method of preparation, etc.

The following should be the minimum analysis of the feeds named, and are given for comparison:

| | PROTEIN. | FAT | CRUDE FIBRE (Usual Limits.) |
|---|---|---|---|
| Cotton Seed Meal | 40 Per Cent. | 8 to 9 Per Cent. | 6 to 8 Per Cent. |
| Linseed or Flax Seed Meal—Oil Cake Meal | 35 " | 7 " | 8 to 9 " |
| Gluten Meal | 33 to 36 " | 2 " | 1½ to 2½ " |
| Gluten Feed | 25 " | 3 " | 7 to 9 " |
| Germ Oil Meal | 23 " | 10 " | |
| Malt Sprouts | 23 " | 1 to 2 " | 12 to 14 " |
| Dried Brewers' Grains | 20 " | 3 " | 10 to 12 " |
| Wheat Middlings | 17 to 18 " | 5 " | 4 to 7 " |
| Wheat Bran | 15 " | 4 to 5 " | 9 to 11 " |
| Ground Oats | 11 to 12 " | 4 to 5 " | 8 to 11 " |
| Corn Meal | 9 to 11 " | 3 to 5 " | 1 to 2½ " |
| Oat Straw | 3 to 5 " | 1 to 1½ " | 35 to 40 " |
| Oat Hulls | 3 to 4 " | 1 to 1½ " | 28 to 32 " |
| Corn Cobs | 2 to 3 " | ½ to 1 " | 30 to 33 " |
| Meat and Bone Meal | 40 " | 10 " | ½ to 1 " |
| Meat Meal | 60 " | 10 " | ½ to 1 " |

It should be remembered that the analysis does not indicate the palatability of the feed, or if it is musty, moldy or sour. These conditions are generally easily recognized by simple inspection—the appearance, odor, etc., or by the animals refusing the feed. Moldy corn is frequently kiln-dried and, while this prevents further growth of the mold, it does not restore the feed to prime condition. It is not relished by animals, and is unwholesome. It is false economy to use damaged feed, even if the feed is "cheap."

## ANALYSIS OF FEEDING STUFFS.

| No. | Name of Manufacturer or Agent. | Name of Feeding Stuffs. | Place of Sampling. | Protein. | | Fat or Ether Extract. | | Crude Fibre. | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Found. | Guaranteed. | Found. | Guaranteed. | Found. | Guaranteed. |
| 20011 | American Agr'l Chemical Co., New York, N. Y. | Beef Scraps for Poultry. | Baltimore..... | 67.46 | ..... | 12.43 | ..... | .51 | ..... |
| 19967 | " " " " | Meat and Bone for Poultry. | Baltimore..... | 43.81 | ..... | 9.83 | ..... | 1.97 | ..... |
| 19958 | American Alfalfa Food Co., Wichita, Kan. | Acme Horse Feed..... | Baltimore..... | 14.83 | 14.50 | 3.81 | 3.12 | 15.00 | 12.10 |
| 20019 | American Hominy Co., Indianapolis, Ind. | Homcoline Feed..... | Baltimore..... | 16.67 | 16.00 | 8.20 | 6.50 | 3.81 | 14.00 |
| 19950 | American Linseed Co., New York, N. Y. | Old Process Oil Meal... | Baltimore..... | 36.07 | 32.00 | 5.76 | 5.00 | 6.98 | 5.00 |
| 19988 | American Maize Products Co., New York, N. Y. | Cream of Corn Gluten Feed. | Baltimore..... | 23.96 | 23.00 | 2.61 | 2 50 | 7.62 | 6.50 |
| 19989 | American Milling Co., Chicago, Ill. | Sucrene Dairy Feed.... | Baltimore..... | 17.72 | 16.50 | 5.92 | 3.50 | 13.18 | 12.00 |
| 20028 | " " " " | Sucrene Horse and Mule Feed. | Rising Sun.... | 8.42 | 10.00 | 3.56 | 3.00 | 11.04 | 13.50 |
| 19980 | Anderson Phosphate & Oil Co., McCormick, S. C. | Standard Cotton Seed Meal | Baltimore..... | 40.02 | 40.00 | 8.37 | 8.00 | 6.51 | ..... |
| 19951 | Baugh & Sons Co., Baltimore, Md. | Meat Meal ..... | Baltimore..... | 64.48 | 50.00 | 14.75 | 14.00 | .81 | ..... |
| 20024 | Blatchford's Calf Meal Factory, Waukegan, Ill. | Blatchford's Calf Meal. | Baltimore..... | 24.83 | 25.00 | 6.30 | 5.00 | 6.45 | ..... |
| 19952 | F. W. Bolgiano & Co., Washington. D. C. | Good Luck Meat Meal.. | Hyattsville.... | 64.31 | 65.00 | 15.83 | 14.00 | .85 | ..... |
| 19987 | J. Bolgiano & Son, Baltimore, Md. | Square Deal Pigeon Food. | Baltimore..... | 12.55 | 11.06 | 3.47 | 4.44 | 2.76 | ..... |
| 19998 | " " " " | Square Deal Poultry Food. | Baltimore..... | 9.30 | 11.50 | 3.95 | 3.87 | 2.70 | ..... |
| 20013 | H. E. Bridges & Co., Memphis, Tenn. | Cotton Seed Meal ..... | Baltimore..... | 38.35 | 41 00 | 8.07 | 7.00 | 9.27 | 9.00 |
| 19990 | F. W. Brode & Co., Memphis, Tenn. | Owl Brand Cotton Seed Meal. | Baltimore..... | 39.58 | 41.00 | 8.24 | 6.00 | 7.88 | 10.00 |
| 20017 | Jno. J. Buffington & Co., Baltimore, Md. | Buff Brand Chick Feed.. | Frizellburg.... | 10.18 | 10.00 | 3.16 | 3.00 | 2.40 | ..... |
| 19936 | T. F. Burroughs Son & Co., Alexandria, Va. | Cotton Seed Meal ..... | Laurel ..... | 38.44 | ..... | 7.37 | ..... | 10.51 | ..... |
| 20025 | Chapin & Co., Milwaukee, Wis. | Unicorn Dairy Ration .. | College Park .. | 25.71 | 26.00 | 7.31 | 5.50 | 9.45 | 9.00 |
| 19934 | Continental Cereal Co., Peoria, | Continental Distillers | Long Green ... | 28.26 | 35.00 | 18.47 | 12.00 | 10.06 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 19936 | T. F. Burroughs Son & Co., Alexandria, Va. | Cotton Seed Meal ..... | Laurel | 38.44 | ..... | 7.37 | ..... | 10.51 | ..... |
| 20025 | Chapin & Co., Milwaukee, Wis. | Unicorn Dairy Ration .. | College Park .. | 25.71 | 26.00 | 7.31 | 5.50 | 9.45 | 9.00 |
| 19934 | Continental Cereal Co., Peoria, Ill. | Continental Distillers Grains. | Long Green ... | 28.26 | 35.00 | 18.47 | 12.00 | 10.06 | ..... |
| 19981 | Corn Products Refining Co., New York, N. Y. | Buffalo Gluten Feed.... | Baltimore..... | 24.92 | 24.00 | 3.81 | 2.00 | 6.03 | 3.00 |
| 20012 | " " " " | Pure Corn Oil Meal, Dairy Food. | Baltimore..... | 20.01 | ..... | 12.12 | ..... | 9.50 | ..... |
| 19959 | Corno Mills Co., East St. Louis Ill. | Corno Horse and Mule Feed. | Baltimore..... | 11.67 | 9.05 | 4.30 | 3.05 | 16.60 | 12.06 |
| 19960 | " " " " | Nutro Hen Feed..... | Baltimore..... | 11.06 | 10.00 | 3.40 | 3.70 | 2.26 | 2.30 |
| 19992 | Cyphers Incubator Co., Buffalo, N. Y. | Chick Food..... | Baltimore..... | 10.44 | 10.00 | 3.03 | 3.00 | 3.11 | ..... |
| 20021 | " " " " | Forcing Food..... | Baltimore..... | 12.20 | 12.89 | 3.85 | 3.80 | 4.11 | ..... |
| 20022 | " " " " | Laying Food..... | Baltimore..... | 13.69 | 17.31 | 3.56 | 3.30 | 4.38 | ..... |
| 19982 | Darling & Co. Long Island City, N. Y. | Beef Scraps for Poultry. | Baltimore..... | 59.45 | 55.00 | 12.29 | 5.00 | 1.45 | 3.00 |
| 19993 | Desoto Oil Co., Greenville, Miss. | Cotton Seed Meal ..... | Baltimore..... | 37.03 | 38.60 | 7.22 | 7.00 | 12.02 | ..... |
| 19974 | Dewey Bros. Co., Blanchester, Ohio. | Distillers Dried Grains.. | Grantsville.... | 30.54 | 26.00 | 13.06 | 9.00 | 12.14 | ..... |
| 19947 | Jonas F. Eby & Son, Lancaster, Pa. | Crystaloid Dairy Feed.. | Union Bridge.. | 16.94 | 16.50 | 5.65 | 3.50 | 11.66 | ..... |
| 19961 | Eidman Bros., Agents, Baltimore, Md. | Cotton Seed Hulls..... | Baltimore..... | 7.72 | ..... | 1.56 | ..... | 16.53 | ..... |
| 20026 | Flint Mill Co., Milwaukee, Wis. | Triangle Calf Feed ..... | College Park.. | 20.53 | 16.00 | 11.10 | 8.00 | 3.27 | ..... |
| 19944 | C. A. Gambrill Mfg. Co., Ellicott City, Md. | Wheat Middlings..... | Atholton ..... | 16.67 | ..... | 5.31 | ..... | 8.15 | ..... |
| 19945 | " " " " | Wheat Middlings..... | Atholton ..... | 16.15 | ..... | 5.18 | ..... | 7.79 | ..... |
| 19999 | J. J. George & Co., Baltimore, Md. | Poultry Feed..... | Baltimore..... | 8.95 | 8.60 | 4.10 | 3.86 | 2.90 | 4.94 |
| 20004 | Great Western Cereal Co., Chicago, Ill. | Boss Chop Feed..... | Fallston..... | 8.60 | 8.00 | 4.76 | 3.50 | 8.16 | ..... |
| 20005 | Great Western Cereal Co., Chicago, Ill. | Daisy Dairy Feed ..... | Bel Air..... | 16.15 | 15.00 | 3.43 | 3.00 | 12.73 | ..... |
| 20000 | " " " " | Sterling Chick Feed.... | Baltimore..... | 9.83 | 10.00 | 3.06 | 3.00 | 1.82 | 4.00 |
| 20001 | " " " " | Sterling Scratch Feed.. | Baltimore..... | 9.56 | 10.00 | 3.04 | 3.00 | 2.36 | 4.00 |
| 20006 | " " " " | Sterling Stock Feed.... | Fallston..... | 9.74 | 10.00 | 3.43 | 4.00 | 8.77 | ..... |
| 19937 | Dwight E. Hamlin & Co., Pittsburg, Pa. | Horse, Mule and Dairy Feed. | Laurel..... | 17.46 | 16.00 | 4.34 | 3.50 | 15.20 | 16.00 |
| 19939 | Highland Park Mfg. Co., Rock Hill, S. C. | Prime Cotton Seed Meal. | Baltimore..... | 43.79 | 43.00 | 9.47 | ..... | 6.20 | ..... |

| No. | Name of Manufacturer or Agent. | Name of Feeding Stuffs. | Place of Sampling. | Protein. | | Fat or Ether Extract. | | Crude Fibre. | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Found. | Guaranteed. | Found. | Guaranteed. | Found. | Guaranteed. |
| 19968 | H-O-Co., Buffalo, N. Y..... | Jim Dandy Oat Feed... | Baltimore..... | 7.63 | 7.50 | 3.18 | 2.75 | 17.14 | ..... |
| 19962 | H. B. Hull & Co., Baltimore, Md. | Ground Feed..... | Baltimore..... | 11.06 | 10.71 | 4.09 | 3.82 | 5.49 | 4.44 |
| 20018 | Humphreys Godwin Co., Memphis, Tenn. | Dixie Brand Cotton Seed Meal. | Frizellburg.... | 39.58 | 38.50 | 7.19 | 7.00 | 8.88 | ..... |
| 19935 | Chas. A. Krause Millling Co., Milwaukee, Wis. | Badger Dairy Feed. | Cockeysville... | 16.23 | 16.00 | 4.41 | 3.50 | 12.06 | 12.00 |
| 20029 | " " " " | Horse and Mule Feed... | Westminster.. | 11.06 | 10.00 | 2.68 | 2.00 | 10.76 | 10.00 |
| 19963 | Larrowe Milling Co., Detroit, Mich. | Dried Beet Pulp..... | Baltimore..... | 8.86 | 8.00 | .72 | .50 | 17.11 | 20.00 |
| 19973 | Listman Mill Co., La Crosse Wis. | Elmco Standard Wheat Middlings. | Grantsville.... | 18.02 | 18.61 | 6.06 | 6.55 | 7.60 | ..... |
| 19948 | Guy G. Major Co., Toledo, Ohio. | Old Process Oil Meal... | New Windsor.. | 34.75 | 30.00 | 6.16 | 5.00 | 3.04 | 2.00 |
| 19969 | Michigan Sugar Co., Bay City, Mich. | Dried Beet Pulp..... | Baltimore..... | 8.34 | 6.00 | .98 | .40 | 18.36 | ..... |
| 19953 | Milwaukee Grain & Feed Co., Milwaukee, Wis. | Electric Stock Feed .... | Hyattsville.... | 15.88 | 14.00 | 3.92 | 2.00 | 8.80 | 10.00 |
| 20016 | " " " " | XXX Horse Feed..... | Providence.... | 17.38 | 14.00 | 3.61 | 2.00 | 14.11 | ..... |
| 20027 | North-West Mills Co., Winona, Minn. | Sugarota Calf Meal .... | College Park .. | 26.68 | 25.00 | 6.13 | 6.00 | 4.89 | ..... |
| 19995 | " " " " | Sugarota Dairy Feed... | Baltimore..... | 13.25 | 16.00 | 6.03 | 3.00 | 14.30 | 12.00 |
| 20009 | " " " " | Sugarota Horse Feed... | Cumberland... | 9.13 | 12.00 | 4.33 | 3.50 | 12.99 | ..... |
| 19977 | Pennsylvania Primo Feed Co., Harrisburg, Pa. | Primo Special Poultry Mash. | Baltimore..... | 18.69 | 22.19 | 5.18 | 5.73 | 6.40 | 4.27 |
| 19983 | " " " " | Sylva Chick Feed..... | Baltimore..... | 8.34 | 12 31 | 3.26 | 3.20 | 1.56 | 1.42 |
| 19941 | Piel Bros. Starch Co., Indianapolis, Ind. | Gluten Feed..... | Annapolis..... | 20.97 | 21.00 | 2.82 | 2.00 | 5.93 | 8.00 |
| 20002 | Quaker Oats Co., Chicago, Ill. | Schumacher Little Chick Feed. | Baltimore..... | 10.27 | 10.00 | 3.13 | 2.50 | 2.01 | 5.00 |
| 19964 | " " " " | Schumacher Scratching Grains. | Baltimore..... | 10.97 | 10.50 | 3.82 | 3.50 | 2.61 | 4.50 |
| 19957 | " " " " | Schumacher Special Horse Feed. | Baltimore..... | 8.69 | 9.25 | 3.22 | 3 50 | 8.48 | ..... |
| 20010 | Quaker Oats Co., Chicago, Ill. | Schumacher Stock Feed. | Cumberland... | 10.09 | 10.00 | 4.63 | 4.00 | 11.10 | 10.00 |
| 20020 | Ralston Purina Co., St. Louis, Mo. | Protena Dairy Feed .... | Baltimore..... | 19.48 | 20.00 | 4.98 | 3.50 | 17.84 | ..... |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Grains. | | | | | | | | |
| 19957 | " " " " | Schumacher Special Horse Feed. | Baltimore..... | 8.69 | 9.25 | 3.22 | 3 50 | 8.48 | ..... |
| 20010 | Quaker Oats Co., Chicago, Ill. | Schumacher Stock Feed. | Cumberland... | 10.09 | 10.00 | 4.68 | 4.00 | 11.10 | 10.00 |
| 20020 | Ralston Purina Co., St. Louis, Mo. | Protena Dairy Feed.... | Baltimore..... | 19.48 | 20.00 | 4.98 | 3.50 | 17.84 | ..... |
| 19978 | " " " " | Purina Chicken Chowder | Baltimore..... | 16.67 | 16.00 | 3.30 | 2.50 | 9.16 | 11.05 |
| 19966 | " " " " | Purina Mill Feed Chick Size. | Hyattsville.... | 11.14 | 11.00 | 3.82 | 3 60 | 3.34 | 4.00 |
| 19996 | " " " " | Purina Feed..... | Baltimore..... | 11.14 | 12.50 | 4.41 | 4.00 | 8.96 | 8.00 |
| 19954 | " " " " | Purina Scratch Feed... | Hyattsville.... | 12.55 | 11.00 | 4.43 | 3.00 | 2.71 | 4.00 |
| 19942 | Richmond Abattoir, Richmond, Va. | Rarva Meat Meal..... | Baltimore..... | 84.88 | 85.00 | 6.37 | 7.00 | .23 | ..... |
| 20014 | Wm. G. Scarlett & Co., Baltimore, Md. | Ground Beef Scraps for Poultry. | Baltimore..... | 50.50 | 50.00 | 9.93 | 10.00 | .83 | 3.00 |
| 19991 | " " " " | Oriole Brand Poultry Feed. | Baltimore .... | 11.85 | 11.67 | 5.12 | 3.37 | 4.90 | 4.50 |
| 20015 | " " " " | Oriole Brand Poultry Mash. | Baltimore..... | 15.45 | 15.00 | 5.02 | 3.20 | 8.76 | 11.00 |
| 19970 | " " " " | Shield Brand Chick Feed. | Baltimore..... | 11.41 | 12.14 | 3.14 | 3.97 | 2.62 | 5.00 |
| 19965 | C. S. Schermerhorn & Son, Baltimore, Md. | Prime Cotton Seed Meal. | Baltimore..... | 40.63 | 38.62 | 8.65 | 6.00 | 6.96 | 12.00 |
| 19994 | " " " " | Old Process Oil Meal... | Baltimore..... | 33.78 | 31.50 | 7.23 | 7.00 | 7.48 | 10.00 |
| 19943 | Jas. Schlitz Brewing Co., Milwaukee, Wis. | Brewers' Grains..... | Annapolis..... | 25.80 | 29.00 | 6.67 | 6.50 | 16.57 | 14.00 |
| 19984 | St. Louis Sugar Co., St. Louis, Mo. | Dried Beet Pulp..... | Baltimore..... | 8.69 | 8.00 | 1.14 | .50 | 17.83 | 20.00 |
| 19949 | Southern Cotton Oil Co., Charlotte, N. C. | Cotton Seed Meal..... | Silver Spring.. | 40.50 | 38.62 | 8.26 | 6.00 | 8.30 | ..... |
| 20007 | Southern Fibre Co., Portsmouth, Va. | Prime Cotton Seed Feed. | Bel Air..... | 6.41 | 10.00 | 1.43 | 1.80 | 33.67 | ..... |
| 19975 | Eli Stanton & Son, Grantsville, Md. | Buckwheat Shorts..... | Grantsville.... | 30.71 | ..... | 8.12 | ..... | 5.87 | ..... |
| 20008 | Sugarine Co., Chicago, Ill.... | Sugarine Dairy Feed... | Fallston..... | 16.2 | 16.50 | 4.66 | 3.50 | 11.45 | ..... |
| 19997 | Swift & Co., Kearny, N. J... | Beef Scraps..... | Baltimore..... | 53.64 | 55.00 | 10.92 | 10.00 | 1.05 | ..... |
| 19971 | " " " " | Swift's Poultry Bone... | Baltimore..... | 24.75 | 25.00 | 2.18 | 5.00 | ..... | ..... |
| 19985 | Toledo Grain & Milling Co., Toledo, Ohio. | Corn and Oats Chop.... | Baltimore..... | 9.13 | 10.00 | 4.06 | 4.00 | 3.66 | 6.00 |
| 20023 | Van Inderstine Co., Long Island City, N. Y. | Darling's Beef Scraps.. | Baltimore..... | 56.96 | 55.00 | 11.31 | 5.00 | 1.35 | 3.00 |
| 20003 | Western Grain Products Co., Hammond, Ind. | Hammond Dairy Feed.. | Boyds..... | 16.32 | 17.00 | 4.55 | 3.00 | 10.83 | ..... |
| 19955 | " " " " | Hammond Dairy Feed.. | Hyattsville.... | 15.80 | 17.00 | 5.46 | 3.00 | 10.93 | ..... |

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